

## POSITIONING MECHANISM AND MOUNT APPARATUS INCLUDING THE SAME

### BACKGROUND OF THE INVENTION

#### FIELD OF THE INVENTION

The present invention generally relates to a positioning mechanism. More specifically, the present invention relates to a rotational and linear positioning mechanism and a mount suitable for adjusting the position of suspended electric appliances such as television sets and the like.

### DISCUSSION OF THE RELATED ART

Mounting electronic appliances, such as a computer monitor, a television set, a video cassette recorder, a digital video and the like is accomplished by using mounting assemblies used to secure electronic appliances to walls or ceilings. Such mounting assemblies usually comprise a wall or ceiling bracket attached to a ceiling or a wall, an articulated support arm attached to said bracket and a support tray (e.g. mounting plate) attached to said arm on which the electronic appliance is positioned. U.S. Patent No. 5,927,666 discloses a wall bracket for supporting an articulated support arm. Such a mount can also be used to directly support an electronic appliance without the need for the support arm.

To allow adjusting of the mounted appliance, the mounting assemblies further comprise various adjusting and pivoting means for allowing a viewer to adjust the position of a screen to his convenience. Adjusting the position of the mount requires a hinge about which the rotation of the mount occurs and a screw or other friction means to secure the mount in a desired position. Suitable placement of the electronic appliance on the mount will further reduce the friction necessary to keep the electronic appliance in place on the mount.

Currently known adjustable mounts provide friction between two layers of rigid material such as steel or plastic placed one in contact with the other

along their surface. The friction is provided through a screw or another attaching element that forces the two layers of rigid material one onto the other. Gradually, the attaching element erodes or loosens, the two layers or rigid material separate and friction between the two rigid layers is lost. As a result the mount cannot be adjusted efficiently or is tilted out of the position initial determined by the user. Due to gravity forces, the positioning mechanism will tilt down from the pre-set position. If the positioning is not provided via such layers of rigid materials, the mounting device would normally comprise fixed slits or grooves in predetermined positions preset for the various tilting angles required by the user. The change of tilt of such a device requires opening of a holding screw and the changing of the device angle with respect to the its holding bracket so to fit a predetermined slit or groove which will hold the device tilted in the required predetermined position. Then the device is fixed to its position by applying a lock via the holding screw. The prior art mounts can be set in predetermined discrete positions or locations, thus positioning a tilt in an intermediate location between two slits is impossible.

Accordingly, it is the object of the present invention to provide a mounting apparatus, which allows the positioning of a suspended article mounted thereon by a simple movement of the article with no need for complicated operation.

It is another object of the invention to provide such a mounting apparatus, which will allow a smooth and uniform movement of the article during the positioning of a suspended article.

The invention will further solve the need to overcome gravity forces that tends to pull down the suspended article during positioning movement, requiring the application of force to slow down the suspended article when tilting the appliance down and the application of force to push up the suspended article when tilting in the up direction.

It is a further object of the invention to provide such a mounting apparatus, which will maintain the position of the article mounted thereon for a substantial amount of time.

## SUMMARY OF THE PRESENT INVENTION

One objective of the present invention is to provide safety means for stabilizing the display and securing display devices to a mounting plate for preventing possible unintentional movements of said display. Furthermore, it is important to provide safety means that offer the prevention of undesired movement of display object (e.g. flat screen, monitor). Unintentional and undesirable movements can result from gravitational forces applied onto the display object, alternatively unintentional bumping into the display or mounting plate and the like.

In accordance with the present invention, there is thus provided an apparatus for positioning an object, the apparatus comprising a friction member, a friction generating member, the friction generating member comprising a body member having at least one side surface for receiving the friction member, and an affixed member comprising a planar surface moveably connected to the friction generating member and having there between the at least one friction member, whereby movement of the friction generating member generates a friction force between the friction member and the affixed member. The side surface of friction generating member of the apparatus comprises a depression for accommodating the at least one friction member. The friction generating member and the affixed member of the apparatus are pivotally connected. The affixed member of the apparatus is an affixing eye hinged member. The affixing eye hinged member of the apparatus comprises two or more planar members, and the friction generating member of the apparatus comprises two or more side surfaces. The affixing eye hinged member is a U-like cross-section shape member that is terminated by planar members. The U-like cross-section shape member further comprises bends. The two or more planar members further comprise a hole. The friction generating member comprises a snap, the snap comprises a lever with a release grip at its tip, and an edge having a gripping protrusion. The affixed member comprises an elongated affixed member comprising elongated ellipse shape surface. The friction generating member comprises an elongated shape bottom

surface. The elongated ellipse shape surface of the affixed member comprises an elongated ellipse shape aperture. The friction generating member and the affixing member are moveably connected by a screw threaded in a nut. The apparatus further comprising a mechanical linkage between the friction generating member and the friction member, and affixing member is provided by a rigid clip member holding said friction generating member, the friction member and the affixed member together. The apparatus further comprises a mounting plate, the mounting plate comprising a plate for supporting the object. The object is an electronic appliance. The apparatus further comprising a mounting plate, the mounting plate comprising a substantially rectangular cross-section shaped member for supporting the object. The mounting plate comprises two concentric located extruded eyes along the longitudinal axis of the mounting plate. The mounting plate comprises square shaped extruded eyes provided within a distance that is sufficient to place there within the friction generating member. The apparatus further comprising a plate u-shaped cross-section aperture. The friction generating member is placed between the mounting plate and the affixing hinged eye member secured by a pivot passing along the horizontal axis through the friction generating member. The friction member has a high friction coefficient number. The friction member has a friction coefficient number ranging from about 0.1 to 0.65. The object is an electronic appliance to be tilted or rotated by a user. The appliance is any one of the following: a computer screen monitor, a television plasma, LCD or other screen, an audio speaker, a painting, a framed picture, a lighting device.

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### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the drawings in which:

5           Fig. 1 is a perspective view of a rotational positioning mechanism attached to monitor mounting plate in accordance with the preferred embodiment of the present invention;

          Fig. 2 is a perspective view of a positioning mechanism adjacent to monitor mounting plate that is attached to a monitor in accordance with the  
10           preferred embodiment of the present invention;

          Fig. 2A is a perspective view of friction generating member adjacent to a monitor mounting plate in accordance to the preferred embodiment of the present invention;

          Figs. 2B and 2C are a friction generating and a mounting plate,  
15           respectively, in accordance to the preferred embodiment of the present invention;

          Figs. 3A, 3B and 3C are exploded view of the positioning mechanism shown in Fig. 1, including the friction generating member and the mounting plate, in accordance with a preferred embodiment of the present invention;

          Figs. 4A, 4B depict a side view of friction generating member and a  
20           friction member according to the positioning mechanism shown in Fig. 1;

          Figs. 5A, 5B are perspective views of a linear positioning mechanism in accordance with the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention discloses a new and novel positioning mechanism and mount apparatus. The positioning mechanism according to the present invention can provide a rotational friction mechanism, a linear friction mechanism or combination thereof and a mount for mounting an electronic appliance thereon and tilting said appliance via the positioning mechanism. Thus, an object associated with the positioning mechanism such as a computer screen monitor, a television plasma, LCD or other screen, a audio speaker, a painting, a framed picture, a lighting device and the like, associated with the mechanism can be tilted, rotated or displaced in any desired direction. The positioning mechanism provides that a user can position an object in a new desired position without the said object, while being positioned into the desired position will have a self movement associated with the object's weight (e.g. downward as consequence of gravitation). The positioning mechanism provides that once a user sets the newly desired position of the object the position is fixed and is not likely to change as long as a user sets another position. Once the position of the object associated with the positioning mechanism is fixed there is no further need to assure that the object will have a movement subject to the weight or size of the object itself. The invention will be better understood in view of the associated drawings. The positioning mechanism comprises an affixed member comprising at least one surface, a friction generating member comprising at least one surface and one or more friction elements. The friction element or elements are positioned between a surface of the affixed member and a surface of the friction generating member. The friction generating member is moveably connected to the affixed member. The friction generating member's position is associated with the position of an object associated with the positioning mechanism. The friction element is associated with the positioning of the friction generating member. Fig. 1 is a perspective view of a rotational positioning mechanism in accordance with the present invention. Positioning mechanism 10 comprises a friction generating member 12, an affixing eye hinged member 14 and friction members 50, 52.

Friction members 50, 52 are shown in more detail in Fig. 3B. Each of the friction members 50, 52 are placed within a suitable depression within the friction generating member 12 and facing the side walls of affixed member 14. Friction members 50, 52 allow a relative movement of friction generating member 12 in respect to affixed member 14. Thus, friction members 50, 52 provide a user to move (e.g. rotate) an object to be positioned in the desired place (e.g. tilt). Friction generating member 12 and affixing eye hinged member 14 are moveably connected by screw 20 threaded in nut 21. Nut 21 is shown in more detail in Fig. 3A. Screw 20 is used as a mechanical linkage between friction generating member 12 and affixed member 14. Screw 20 is also used as a pivot providing the rotational movement of friction generating member 12. Accordingly, movement of friction generating member 12 initiates a friction between friction members 50, 52 and friction generating member 12 and also with affixing eye hinged member 14. According to other embodiments a mechanical linkage between friction generating member 12, affixing eye hinged member 14 can be provided with other means such as a rigid clip member holding moveable member and affixed member together and the like. Accordingly, said embodiments can comprise a pivot member additionally to a mechanical linkage member providing rotational movement of mechanism. Thus, the rotational movement of the mechanism can be determined by a pivot and the mechanical linkage between a friction generating member and an affixing eye hinged member 14 by another mechanical linkage. Affixing eye hinged member 14 can be connected to a wall, ceiling or floor mounting assemblies such as an arm apparatus and the like (not shown). Accordingly, positioning mechanism 10 can be attached to supporting arms, such as arms for mounting monitors, television sets, VCRs, DVDs, speakers, light projectors, acoustic plates and other objects. Positioning mechanism 10 provides that the tilt of objects adjacent, juxtaposed to or mounted on the friction generating member 12 of said mechanism is fixed according to the desirable position by a user (not shown). The desirable tilt of an object is reached by a rotational movement of the object adjacent or juxtaposed to

or mounted on friction generating member 12. In other preferred embodiments of the present invention an object can be associated with the moveable member and not adjacent or juxtaposed to a moveable member. Thus, an object such as a flat screen can be mounted on one end of an elongated supporting arm. Said arm is remotely associated with a moveable member of a positioning mechanism on one end and with said screen on a second end of the supporting arm. Thus, a movement of an object according to said embodiments provides a user to easily determine the desired position of an object (e.g. by tilting the object).

The construction of the positioning mechanism provides as it is depicted below that an object remains in a desirable position as long as a user will wish it to remain in its set position. Thus, in order to reach a desirable position and fixation of the mount at said position, a user is required only to move said object to the desired position. The movement of an object to a desired position and the fixation of position of an object provided by the present invention do not disregard safety measures concerning said movement of objects as will be depicted below.

As depicted above in view of Fig. 1 friction generating member 12 is placed between mounting plate 16 and affixing hinged eye member 14 secured by screw 20 passing along the horizontal axis through friction generating member 12. Thus, movement of mounting plate 16 by a user or through gravitational force transfers movement to friction generating member 12. Also shown in Fig. 1 is a rounded shaped release grip 18 used by the user to release the desired position of the mounting plate 16 with respect to the friction generating member 12. As will be explained below the friction generating member 12 can be attached through a snapping and locking operation to the mounting plate 16.

Fig. 2 is a perspective view of positioning mechanism 10 positioned adjacent to mounting plate 16 and wherein mounting plate 16 is attached to an electronic appliance 22, such as an LCD display or a plasma television set. Appliance 22 is attached to mounting plate 16 by screws 24, 26, 28, 30 where screw 30 is hidden from view. Rotational positioning mechanism 10 provides a rotational movement of mounting plate 16 by a motion of friction generating



member 12. Fig. 2A is a perspective view of friction generating member 12 adjacent to a mounting plate 16 in accordance to the preferred embodiment of the present invention. Figs. 2B and 2C show separately friction generating member 12 and mounting plate 16 of Fig. 2A. Figs. 2A through 2C will be depicted jointly wherein each numeral refers to the same element. Mounting plate 16 is a substantially rectangular cross-section or butterfly wings cross-section shaped member for supporting electronic appliance 22 of Fig. 2. The mounting plate 16 comprises two concentric located extruded eyes 158, 160 along the longitudinal axis of mounting plate 16. Friction generating member 12 is inserted between the extruded eyes 158, 160 and comprises a body member 162, snap 58 and hook shaped arm 90. Friction generating member 12 is fabricated from a rigid plastic material. Friction generating member 12 can be comprised from a rigid plastic material, a composite of various polymers, metal alloy, a combination thereof, and the like. The friction generating member 12 body member 162 comprises two side surfaces 95, 94 (shown in Fig. 4A), hole 164, aperture 172, and a front surface 54. Further depiction of side surfaces 94, 95 and hole 164 is provided in view of the Figs below. Side surfaces 94, 95 each comprise depression 166 for receiving the friction members (not shown) and additional small rectangular shaped depressions 168, 170 that reduce the amount of material needed when manufacturing friction generating member 12 from a plastic or other rigid material. However, according to other embodiments side surfaces 94, 95 can be formed without a depression and wherein the friction members are attached to the friction generating member 12 by mechanical attaching devices as described above, and not comprising depressions there within. Snap 58 comprises a lever 96 with rounded shaped release grip 18 at its tip, and bulky edge 60 having a gripping protrusion 174. Arm 90 is a hook shaped arm having an edge 56. Hole 164 is positioned in parallel to mounting plate holes 38, 40 within affixing eye hinged member 14 shown in Fig. 3 below. Accordingly, screw 20 and nut 21 are put through holes 38, 40, 164. Thus, friction generating member 12 and affixing eye hinged member 14 are moveably connected with hinge shaft or screw 20 and

nut 21. The assembly of friction generating member 12 to affixing eye hinged member 14 is further depicted in view Figs. 3A, 3B, and 4A below. As shown friction generating member 12 is affixed to the mounting plate 16 and secured by the affixed eye hinged member 14, the three elements are pivotally connected through holes 38, 164, 40 via screw 20 and nut 21. Snap 58 is fabricated from a rigid plastic material having an elastic capability. The elastic capability of snap 58 provides an easy and fast connecting and disconnecting competence of positioning mechanism 10 from mounting plate 16. Movement of snap 58 and edge 60 can be manipulated by lever 96. Lever 96 has at one end a rounded shaped surface 18. Applying pressure force on rounded shaped release grip 18 in a direction opposite edge 60 provides movement of lever 96, edge 60 and protrusion 174. The movement of protrusion 174 is in the direction of said pressure on rounded shaped release grip 18 and in the direction of arrow 185. Said movement of protrusion 174 provides a user of positioning mechanism 10 to easily disconnect the mechanism from mounting plate 16. Said competence to disconnect positioning mechanism 10 from mounting plate 16 is due to the connection nature detailed below between friction generating member 12 and mounting plate 16.

Mounting plate 16 comprises square shaped extruded eyes 158, 160, aperture 86, plate U-shape cross-section apertures 150, 152, flaps 154, 156, and mounting surfaces 176, 178. Mounting plate 16 can be fabricated from metal or any other material sufficient for supporting and holding a monitor, a screen display unit and the like. Mounting surfaces 176, 178 comprise connecting holes 62 through 82 and 88. Connecting holes 62 through 82 and 88 are shown in Fig. 3C and are used to connect the mounting plate 16 to the appliance to be mounted. One example of appending mounting plate 16 to a flat screen plasma display 22 using screws is shown in Fig. 2. Flaps 154, 156 are positioned on both sides of aperture 86. Friction generating member 12 is positioned within mounting plate 16. Square shaped extruded eyes 158, 160 are provided within a distance 180 that is sufficient to place there within the body 162 of friction generating member 12.

Square shaped extruded eyes 158, 160 comprise plate U-like cross-section apertures 150, 152, respectively. Plate U-like cross-section apertures 150, 152 are positioned in U-like cross-section protrusion 85, 84, respectively. U-like cross-section protrusion 85, 84 are positioned opposite the insertion direction of friction generating member 12 connecting to mounting plate 16. According to the preferred embodiment of the present invention, friction generating member 12 is placed within mounting plate 16 in the further manner: edge 60 with protrusion 174 is placed within plate U-like cross-section aperture 152, surface 54 of body 162 is placed within aperture 86, and edge 56 of arm 90 is placed within plate U-like cross-section aperture 150. Protrusion 174 provides a snap fit of snap 58 in plate U-like cross-section aperture 152 that holds friction generating member 12 adjacent to mounting plate 16. Surface 54 of body 162 is fitted in aperture 86 and held in their position with flaps 154, 156. Flaps 154, 156 are partially curved and substantially parallel members forming curvatures 182, 183 (not shown). Curvatures 182, 183 are projecting to distance 180. Recess 172 is open to both sides of surfaces 94, 95. Recess 172 comprises rims 240, 242, 244 that are adjacent to side surface 95, and rims 246, 248, 250 that are adjacent to side surface 94. Rims 240, 242, 244 along with elevation 200 comprise an opening 252 of recess 172. Similarly, rims 246, 248, 250 along with elevation 196 comprise an opening 254 of aperture 172. Upon inserting body 162 to aperture 86 flaps 154, 156 with curvatures 182, 183 are placed on openings 252, 254, respectively. Placing flaps 154, 156 on opening 252, 254, respectively, provides the stability of friction generating member 12. Thus flaps 154, 156 prevent movement of body member 162 of friction generating member 12 in the direction of the said flaps. According to other embodiments recess 172 can be replaced by recesses on both sides of body 162 that are not open to both sides such as recess 172. Edge 56 is place within plate U-like cross-section aperture 150, thus providing a grasp of U-like cross-section protrusion 85 of extruded eye 158. As depicted above, applying pressure on rounded shaped release grip 18 of lever 96 provides a movement of protrusion 174 concurrently, in a direction opposed to

mounting plate 16 and in the direction of arrow 185. Hence, due to the fact that mounting surfaces 176, 178 are appended to an appliance and is of some weight, the disconnection of friction generating member 12 from mounting plate 16 is simple by applying pressure on rounded shaped release grip 18. Thus, as depicted  
5 above, applying pressure on rounded shaped release grip 18 elevates protrusion 174 in the direction of arrow 185 that disconnects friction generating member 12 (i.e. positioning mechanism 10) from mounting plate 16 (i.e. appliance 22).

Fig. 3 shows an exploded view of positioning mechanism 10 and associated monitor mounting plate 16. Friction generating member 12 and  
10 affixing eye hinged member 14 are moveably connected by screw 20 threaded in nut 21. Affixing eye hinged member 14 is a U-like cross-section shape member that is terminated by planar members 34, 36. Affixing eye hinged member 14 further comprises a U-like cross-section shape section 42, and bends 44, 46 (whereas bend 46 is hidden from view). U-like cross-section shape section 42,  
15 and bends 44, 46 provide a supporting frame for friction generating member 12 upon disconnecting friction generating member 12 from mounting plate 16 as depicted above in view of Figs 2A through 2C. Planar members 34, 36 provide a supporting surface for friction members 50, 52, respectively. Planar members 34, 36 provide further a supporting frame for appending friction generating member  
20 12 with affixed member 14. Each of planar members 34, 36 comprises an interior side, 102 (not shown) 100, respectively that face friction generating member 12, and an exterior side, 97, 98 (not shown), respectively, opposing friction generating member 12. Planar members 34, 36 further comprise apertures 38, 40 that are used for insertion of screw 20 and nut 21. Affixing eye hinged member  
25 14 is fabricated from a rigid metal such as painted steel. In other preferred embodiments affixed member can be fabricated from other alloys of metal, polymers, or combination thereof that provide a rigid construction of said member.

Fig. 3B and Fig. 4A provide a perspective and side view of friction  
30 generating member 12. Friction generating member 12 comprises side surfaces

94, 95 (not shown) as well as other elements depicted in view of Figs 2A through 2C. Side surfaces 94, 95 are not shown in Fig. 3B. Surfaces 94, 95 provide depressed sections such as depression 166 (of surface 94) for placing friction members 50, 52 there within. The depression of surfaces 94, 95 (e.g. depression 166) are of thickness smaller than the thickness of friction members 50, 52. Thus, when placed in the depressed sections, friction members 50, 52 slightly protrude proximal to planar members 34, 36. Friction members 50, 52 are located adjacent to side surfaces 94, 95. Each of surfaces 94, 95 end with an elevation. Thus, surface 94 comprises elevations 190, 192, 194, 196, that can be viewed in Fig. 4A, and surface 95 comprises elevations 198, 200, 202, and 204, that can be viewed in Fig. 2C. Friction members 50, 52 adjacent to surfaces 94, 95, respectively, are held positioned adjacent by said elevations. Additionally, friction members 50, 52 are held adjacent to surfaces 94, 95 by friction between said friction members and surfaces 94, 95. Friction members 50, 52 are fabricated from materials providing a remarkably high friction coefficient number such as ranging from about 0.1 to about 0.65.

Due to the high coefficient material used for friction members 50, 52 a high friction force is provided during the contact of said friction members and its adjacent surfaces. The friction force is reached by the use friction elements positioned adjacent to surfaces of friction generating element 12 and affixing eye hinged member 14. Thus, friction members 50, 52 are positioned between surfaces 94, 95 of friction generating element 12 and surfaces of interior part 102, 100 of affixing eye hinged member 14. Friction members 50, 52 are held affixed adjacent to said surfaces by screw 20 and nut 21. Alternatively, friction members 50, 52 are held affixed adjacent to said surfaces by screw 20 and nut 21 as well as by elevations 190 through 204. The friction force generates sufficient force that prevents substantially any movement of friction generating element 12 (i.e. positioning mechanism 10) resulting from force other than a user moving said generating element. The Friction force generates a force that enables friction generating element 12 associated with an electrical appliance weighing for

example, 30 – 40 Kilograms to remain substantially in the same position (e.g. tilt) for a long time period even by using friction elements 50, 52 that have a relative small area. Remaining in the same position for a said time period is subject to the fact that no user will attempt to move (e.g. rotate) said associated object or friction generating element 12. According to one example of the preferred embodiment, friction elements 50, 52 each having an area size of 5 cm<sup>3</sup> positioned adjacent to affixing eye hinged member 14 and friction generating element 12 associated with a television set weighing the about 30 – 40 Kg placed on a mounting plate 16 can remain in the same tilt position for an exemplary term of say, five years. One skilled in the art can appreciate that other sizes and qualities of friction elements can be used for providing different possibilities for positioning mechanisms. Thus, friction elements with larger areas can provide a positioning possibility for substantially heavier objects. Other embodiments can be provided with friction elements fabricated from material with a low friction coefficient number that demands an annual changing of said friction elements positioned within a positioning mechanism associated with an electrical appliance weighing about 30 – 40 Kg. Replacement of friction elements 50, 52 can be easily performed by a user applying force on rounded shaped release grip 18. As depicted above in view of Figs 2A through 2C applying force on rounded shaped release grip 18 releases friction generating element 12 (i.e. positioning mechanism 10) from mounting plate 16. Thus, enabling to easily release screw 20 from nut 21, separate affixing eye hinged member 14 from friction generating element 12, and substituting said friction elements by extracting friction element 50, 52 from positioning mechanism 10 and inserting new friction elements. The assembly of positioning mechanism is performed as depicted above. Alternatively, positioning mechanism 10 can remain associated with mounting plate 16 and the substitution of friction elements can be performed in the same way as described here above. However, according to the last friction elements substitution embodiment it may be preferable that a heavy object may not be associated with said mounting plate.

Other embodiments of positioning mechanisms can provide friction members and side surfaces in different sizes and shapes. Friction generating member 12 can be comprised from a rigid plastic material, a composite of various polymers, metal alloy, a combination thereof, and the like. Such materials can be a composite of a number of materials. Thus, a composite of a variety of fibers, fillers, non-ferrous metals, abrasives, lubricants and rubbers, all or part of said materials chemically and physically bounded may provide one example for a friction member used within the invention. Other material that may be used is a composite of stone wool, vermiculite, cellulose, phenol resin, fiber glass, steel wool, oxides, rubber, graphite and fillers. Other examples of material used for friction members according to the present invention can be disc pads produced by Federal Mogul from Southfield, Michigan, U.S.A and the like.

When used, positioning mechanism 10 is used to position mounting plate 16 attached to appliance 22. The weight of appliance 22 applies force (e.g. gravitation force) on supporting surfaces 176, 178. Said force applied to supporting surfaces 176, 178 as well as the weight of mounting plate 16 (hereafter together: "the positioned force"), are applied to positioning mechanism 10. Thus, as depicted above in Figs. 2A through 2C, friction generating member 12 juxtaposed to mounting plate 16 receives the positioned force. Friction generating member 12 transfers the positioned force to affixing eye hinged member 14 through friction members 50, 52. Affixing eye hinged member 14 is attached to a mounting arm (not shown), which can be attached to a bracket (not shown) and affixed to a wall or ceiling. The positioned force applies its force on affixing eye hinged member 14 that conveys said force to a wall or ceiling connected to the arm mounting device via the bracket. The friction coefficient of friction members 50, 52 provides that the tilting position of mounting plate 16 and appliance 22 is determined by a user (not shown) that moves said appliance into a desired position. Additionally, as depicted above due to said friction coefficient, once the position of the appliance is reached said appliance will not be changed due to the positioning force. It will be readily appreciated that an

object such as a large plasma or LCD display and the like can be positioned juxtaposed to a positioning mechanism without a mounting plate. Accordingly, an object can be fastened to moveable member of a positioning mechanism in a variety of ways (e.g. with a buckle, with screws and the like). Thus, a movement  
5 of an object juxtaposed to a positioning mechanism will apply the force of the object (e.g. gravitational force) to a moveable member within a positioning mechanism, to friction members, and to an affixed member.

According to other aspects of the present invention the movement of friction generating member 12 is associated with the movement of an object (e.g.  
10 an appliance 22) adjacent to said positioning mechanism. Thus, the position of friction generating member 12 is associated with an object (e.g. a monitor or a television screen) providing that a movement of an object to a certain tilt will concurrently tilt the friction generating member 12 that applies pressure on friction members 50, 52 juxtaposed to affixing eye hinged member. According to  
15 another aspect of the present invention, the positioning mechanism is not attached or appended to a mounting plate but is adjacent to a mounting plate. Due to the presence of friction members, the tilt of said object and positioning mechanism would remain fixed as long as the position of the object is not changed by a user. The high friction coefficient material used (e.g. friction members 50, 52 used  
20 within positioning mechanism 10) provides that even heavy weight objects positioned adjacent to moveable member will remain in its position after set by a user. Friction members 50, 52 of positioning mechanism 10 are positioned between surfaces 100, 102 (not shown) of affixing eye hinged member 14 and surfaces 94, 95 of friction generating member 12. Surfaces 94, 95 provide a  
25 sufficient space for placing friction members 50, 52 and further comprise a depression for locating said friction members that are bordered by elevations 190 through 204. Though two friction members are shown in regard to positioning mechanism 10 other embodiments can comprise only one friction member, alternatively, more than two friction members with different sizes and shapes can  
30 be used as well. One skilled in the art can appreciate that other shapes of



moveable members, affixed members and friction members can be used providing the positioning mechanism disclosed within the present invention. Friction generating member 12 further comprises hole 164 for placing hinged shaft or screw 20 and nut 21. Thus, as depicted above friction generating member 12 is movably and pivotally connected to affixing eye hinged member 14 by screw 20 and nut 21. Prior to placing screw 20 through hole 164 friction members 50, 52 are positioned between surfaces 95 and 102 (not shown), and 94 and 100, respectively. After positioning friction members 50, 52 between said surfaces of friction generating member 12 and affixing eye hinged member 14 screw 20 is placed through holes 38, 164 and 40 and fastened with nut 21. Positioning mechanism 10 placed adjacent to mounting plate 16 can be rotated in any desired tilt, thus providing that appliance 22 can be positioned at any tilt desired by a user (not shown). The quality of friction members 50, 52 (i.e. high friction coefficient of material) and its position between surfaces of friction generating member 12 and affixing eye hinged member 14 provides that a movement of an object adjacent will be performed by just the movement of the object. Furthermore, the position of said object and the desired position will remain unchanged as long as a user will wish to change said position. All movement of object adjacent to positioning mechanism 10 is mechanical controlled by friction members 50, 52, thus, preventing fast movement that might be caused by gravity forces of said object due to the fact that the movement of object is associated with the movement of friction generating member 12. The large friction coefficient number material surface used for friction surfaces 50, 52 provides a low erosion rate of the friction surfaces and greater control over the position of mounting plate 16.

Figs. 5A and 5B are perspective views of a linear positioning mechanism in different positions in accordance with the present invention. Linear mechanism 120 comprises a friction generating member 122, an elongated affixed member 130 and a friction member 126. Friction generating member 122 is moveably

connected to affixed member 130 by screw 124 and nut 132. Friction generating member 122 comprises a top planar surface 123, and a bottom planar surface 125 facing affixed member 130 top surface. Friction generating member 122 can be adjacent to or, alternatively, attached to a mounting device (not shown) for an object. Thus, friction generating member 122 is connected with screws, clips or other mechanical means to a mounting plate such as depicted in view of Fig. 2 or directly to an object such as an electrical appliance. Friction generating member 122 can be provided with the same elements and members allowing the attachment of friction generating member 12 to a mounting plate 16 of Fig. 1 as shown in view of the figures above. Affixed member 130 can be attached to a mounting assembly connected to a wall, a ceiling or a floor. In addition, affixed member 130 can also be placed directly, without the need for a mounting assembly, on a wall, on an arm and the like. Affixed member 130 comprises an elongated ellipse shape surface 127 facing bottom planar surface 125 of friction generating member 122, and an elongated ellipse shape aperture 128 positioned substantially in the mid section of said affixed member 130. The dimension of elongated ellipse shape surface 127 is sufficient to support positioning friction element 126. Furthermore, elongated ellipse shape surface 127 provides a planar on which a movement of friction element 126 sliding across said surface is possible. Aperture 128 is an elongated ellipse shape with rounded edges having a width sufficient for enabling movement of screw 124 pin along elongated ellipse shape aperture 128 when the user of the device is moving the appliance connected to the friction generating member 122. Screw 124 and nut 132 provide that friction member 126 is affixed related to friction generating member 122. Alternatively, friction generating member 122 can be provided with a depression enabling positioning of friction member 126 as well as with a screw 124 and nut 132, thus affixing said friction member to friction generating member 122. Elongated ellipse shape aperture 128 provides for a linear movement of friction generating member 122. Friction member 126 can be a square shape member fitting both the width of bottom planar surface 125 of friction generating member

122, and elongated ellipse shape surface 127. Friction member 126 is positioned between and adjacent to bottom planar surface 125, and elongated ellipse shape surface 127. Friction member 126 can be the same as friction member 50 depicted in association with the figures above. Thus, friction member 126 is fabricated from a material having a high friction coefficient number. When a user rotates or moves the appliance attached to friction generating member 122 a considerable friction force is generated by friction member 126 high coefficient friction number. The friction is generated between the surfaces of friction member 126 and bottom planar surface 125 and elongated ellipse shape surface 127. Due to the coefficient number of friction member 126 the friction force generated between friction element 126 and adjacent surfaces 125, 127 is sufficient to provide that a mounting plate associated with friction generating member 122 will remain in its position as long as required. Thus, a user can move an object, such as an electrical appliance connected thereto, adjacent to friction generating member 122 to a location desired within aperture 128. Such movement is accomplished along longitudinal axis A-A of the affixed member 130. The extent of the movement is limited by the size of aperture 128. The device shown in Fig. 5A is in nearly most right side position to which the affixed member can be moved. In contrast, the device shown in Fig. 5B is in nearly the most left most position to which the affixed member can be moved. The location of object and friction generating member 122 designated by user will remain unmoved as long as desired by the user. Furthermore, the object associated with friction generating member 122 will not slide subject to the quality of friction member 126. Friction member 126 can be easily replaced by the user of the apparatus shown in Figs. 5A, 5B without having to replace the other operative elements which comprise of materials prone to higher wear.

One skilled in the art can appreciate that a linear mechanism can be placed adjacent to a rotational mechanism and a mounting device for an object can be placed adjacent to said rotational mechanism. Alternatively, a rotational mechanism can be placed adjacent to a linear mechanism, and a mounting device

for an object can be placed adjacent to said linear mechanism. Said positioning mechanisms comprising linear as well as rotational mechanism provide freedom of movement of an object mounted on a mounting device both in a linear and rotational direction. Other embodiment according to the present invention can be movement of objects with small size low powered electric motor located adjacent to a positioning mechanism according to the present invention. Said motor can generate the requested position by moving the friction generating member, or, alternatively, the object associated with said moveable mechanism. Said motor can be remotely controlled. In case of use of a motor either the motor shall be powered all the time or a clutch shall be added to prevent sliding and to hold the position.

It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather the scope of the present invention is defined only by the claims which follow.